

**Synonymy of *Andricus gigas* and the Bisexual Generation of
*Andricus crenatus***

(Hymenoptera: Cynipidae)

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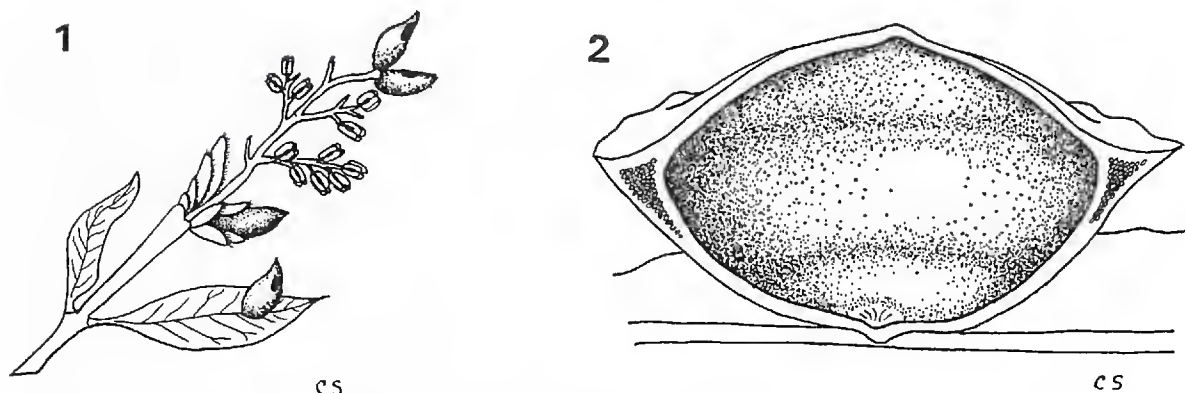
Field observations and rearings have shown the bisexual generation of *Andricus crenatus* Weld (1952) is *Andricus gigas* Kinsey (1922). Because Kinsey erroneously described a toothed tarsal condition, Weld (1951) transferred *A. gigas* to *Dryocosmus* Giraud. Due to the actual toothed tarsal claws of both generations, the species is now returned to the original placement in *Andricus* Hartig. The valid name again becomes *Andricus gigas*.

BIOLOGY.—The senior author made collections (November 1969) of *A. crenatus* from a *Quercus douglasii* Hooker & Arnott in Rumsey Canyon, Colusa County, California. The galls numbered 10 to 20 per leaf and comprised about 90% of the galls on the tree (Fig. 2). The unisexual generation females emerged in February and were bagged on a *Q. douglasii* in Davis, California for controlled rearing.

The tan, conical, bisexual generation galls produced occurred on the staminate flowers and occasionally in leaves (Fig. 1). Those at the base of staminate flowers were often hidden by bud scales. They were collected 14 April 1969 and yielded insects through 17 April 1969 while being maintained indoors. Galls were also collected from the original tree by the senior author on 16 April 1969. The ecology and description of the galls suggested that the bisexual generation of *A. crenatus* was *A. gigas*.

SYSTEMATICS.—The insects from the April 1969 rearings matched the original description of *A. gigas* with the exception of having a toothed rather than simple tarsal claw. Two circumstances suggested *A. gigas* Kinsey might in reality have a toothed tarsal claw and thus not belong in *Dryocosmus*.

First, the occurrence of a bisexual *Dryocosmus* on a California white oak is unusual for the following reasons. Nearly all American *Dryocosmus* occur on oaks of the subgenus *Erythrobalanus* (red oaks), but *A. gigas* was recorded from a *Lepidobalanus* (white) oak. No other described species of *Dryocosmus* from California occur on the white oaks. Since the name *A. gigas* represents a bisexual generation, which are generally smaller, less conspicuous, and more poorly known than the unisexual generation, the unknown alternate unisexual generation



FIGS. 1, 2. *Andricus gigas*. FIG. 1. Bisexual generation gall, 6 $\times$. FIG. 2. Unisexual generation gall, 40 $\times$.

of the species has either not been found or probably belongs to another genus.

Second, all of Kinsey's adults were imperfect, lacking full antennae. As of 1971 none of the type specimens in the American Museum of Natural History had a tarsal claw (J. G. Rozen, personal communication). Five other species described by Kinsey in the same 1922 paper, which were erroneously described as having simple tarsal claws, were correctly transferred by Weld (1951) to genera having toothed tarsal claws. The species transferred were *Andricus atrimentus* Kinsey, *Andricus pedicellatus* Kinsey, *Bassetia ligni* Kinsey, *Neuroterus varians* Kinsey, and *Neuroterus decipiens* Kinsey.

Though Weld's manuscript *Dryocosmus* key lists *Quercus lobata* Nee as an additional host and gives a larger maximum adult *A. gigas* size of 2.8 mm, his field notes (#1157a) and book (1957) give no definite indication that a species matching the original *A. gigas* description, including simple tarsal claw, has been collected subsequently.

This suggested the need to confirm the tarsal condition of *A. gigas*. Paratype (labeled Cotype) galls without emergence holes were dissected and one teneral adult female was extracted. The fore and mid right legs were removed and mounted on a slide. The tarsal claws are toothed. Thus *A. gigas* does not belong in *Dryocosmus*.

The assumption, from the previous paragraph, that the cotype gall, which matches the original description, is an *A. gigas* gall needs re-viewing. The dissected female is yellow-brown on the thorax, probably due to teneral coloration, and has distinct, complete notaulices while the original description indicates that the notaulices should be "fine but evident only posteriorly, less evident, discontinuous or absent anteriorly where the area is finely coriaceous." The paratype insects examined have discontinuous notaulices which do reach the pronotum,

but are weak. Tulloch (1929) stated, "An examination of the immature pupal stages of *Polistes* reveals the presence of these prescutal sutures which gradually disappear as the chitin hardens before attaining the adult condition." This may explain the more marked notaulices on the teneral adult.

These conditions all indicate the alternate generation of *A. gigas* is a senior synonym of the bisexual generation of *A. crenatus*.

There has been a great deal of confusion about the correct terminology to designate the thoracic furrows and lines of Hymenoptera. Tulloch (1929) reviewed the confusion in terminology used for thoracic lines in Hymenoptera and indicates the lateral-most lines on the Hymenoptera mesonotum medial to the suture are correctly referred to as parapsidal lines or furrows. Some Hymenoptera, including cynipids, also have longitudinal furrows correctly called notaulices, medially of the parapsidal furrows. The latter usually have been referred to incorrectly as parapsidal furrows by cynipid taxonomists. Eady and Quinlan (1963) use both terms correctly.

The wing venation terminology employed by Kinsey (1929) and Weld (1957) varies markedly from that used by Snodgrass (1935). Snodgrass, using the Comstock-Needham system, places the cubitus vein posterior to the median. Kinsey and Weld, however, refer to the median vein as being posterior to the cubitus. This terminology was possibly a carry-over from some older system. It is important to standardize the terminology for wing venation of cynipids with the Comstock-Needham system to avoid further confusion. Eady and Quinlan (1963) have corrected cynipid terminology to conform with the Comstock-Needham system and others working with cynipids should follow this corrected system.

TYPE DEPOSITION.—One plesiotype female, dissected from paratype gall, in the American Museum of Natural History, New York, New York.

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